

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

1. (currently amended) A wireless receiver for receiving data over a wireless channel, comprising:
  - a plurality of antennas having signal diversity such that what is received from the wireless channel is not identical at each of the plurality of antennas;
  - digital signal processing logic for processing signals received by the plurality of antennas, wherein the signals are one or more of Barker modulated signals and complementary code keying (CCK) signals;
  - demodulation logic in the digital signal processing logic that demodulates a set of signals from two or more of the plurality of antennas, including one or more of a Barker correlator and a CCK correlator corresponding to modulation of the set of signals; and
  - distortion compensation in the digital signal processing logic that processes at least a portion of the set of signals received comprising portions from signals from at least two of the plurality of antennas to compensate for channel distortion.
2. (original) The wireless receiver of claim 1, wherein the demodulation logic comprises a Barker demodulator comprising a Barker correlator and a Barker slicer.
3. (original) The wireless receiver of claim 1, wherein the demodulation logic comprises a CCK demodulator comprising a CCK correlator and a CCK slicer.
4. (original) The wireless receiver of claim 1, further comprising a mean square error equalizer.
5. (original) The wireless receiver of claim 1, further comprising a decision feedback equalizer.

6. (original) The wireless receiver of claim 1, further comprising:  
a whitened matched filter that receives one or more of the signals received by the plurality of antennas and outputs a number of filtered signals, wherein the whitened matched filter operates on the one or more of the signals according to a channel matched filter and a whitening filter.

7. (original) The wireless receiver of claim 6, further comprising:  
a feedback filter; and  
a symbol by symbol minimum distance receiver (SbS MDR) that receives the number of filtered signals from the sum of the whitened matched filter and the feedback filter and outputs a resulting data stream.

8. (original) The wireless receiver of claim 7, wherein the SbS MDR comprises:  
an SbS MDR matched filter, matched to a response of the whitened matched filter and the wireless channel;  
a correlator; and  
a slicer.

9. (original) The wireless receiver of claim 8, comprising a combined filter implementing the SbS MDR matched filter and the whitening filter.

10. (original) The wireless receiver of claim 8, comprising a combined filter implementing the SbS MDR matched filter and the feedback filter.

11. (original) The wireless receiver of claim 8, with corrections prior to slicing.

12. (original) The wireless receiver of claim 11, comprising a combined filter implementing the SbS MDR matched filter and the whitening filter.

13. (original) The wireless receiver of claim 11, comprising a combined filter implementing the SbS MDR matched filter and the feedback filter.

14. (currently amended) A wireless receiver for receiving data over a wireless channel from a plurality of antennas, comprising:

a whitened matched filter that receives ~~one~~ two or more input signals received from the ~~wireless channel~~ plurality of antennas and outputs a number of filtered signals including at least one combined filtered signal representing a whitened matched filtered signal with contribution from the two or more input signals, wherein the whitened matched filter operates on the ~~one~~ two or more input signals according to a channel matched filter and a whitening filter; and

a symbol by symbol minimum distance receiver (SbS MDR) that receives the number of filtered signals from the whitened matched filter and outputs a resulting data stream.

15. (cancelled).

16. (currently amended) The wireless receiver of claim 14, wherein the ~~one~~ two or more input signals received is different than the number of filtered signals output.

17. (original) The wireless receiver of claim 14, further comprising a Barker demodulator.

18. (original) The wireless receiver of claim 14, further comprising a complimentary code keying demodulator.

19. (original) The wireless receiver of claim 14, further comprising a decision feedback equalizer.

20. (original) The wireless receiver of claim 14, wherein the SbS MDR comprises:

an SbS MDR matched filter, matched to a response of the whitened matched filter and the wireless channel;  
a correlator; and  
a slicer.

21. (original) The wireless receiver of claim 20, comprising a combined filter implementing the SbS MDR matched filter and the whitening filter.

22. (original) The wireless receiver of claim 20, comprising a combined filter implementing the SbS MDR matched filter and a feedback filter.

23. (original) The wireless receiver of claim 20, with corrections prior to slicing.

24. (original) The wireless receiver of claim 23, comprising a combined filter implementing the SbS MDR matched filter and the whitening filter.

25. (original) The wireless receiver of claim 23, comprising a combined filter implementing the SbS MDR matched filter and a feedback filter.

26. (original) The wireless receiver of claim 14, wherein the channel matched filter is implemented as a filter distinct from the SbS MDR matched filter and the whitening filter.

27. (original) A wireless receiver for receiving data over a wireless channel, comprising:

- a channel matched filter;

- a first combined filter coupled with an input to receive an output of the channel matched filter, wherein the first combined filter operates according to an SbS MDR matched filter and a whitening filter;

- a correlator, coupled to receive an output of the first combined filter added to a feedback signal;

- a slicer, coupled to receive an output of the correlator added to one or more weights;

- a second combined filter coupled to receive a slicer output, wherein the second combined filter outputs the feedback signal and operates according to the SbS MDR matched filter and a feedback filter; and

- a data output for outputting a resulting data stream from an output of the slicer.

28. (original) A wireless receiver for receiving data over a wireless channel, comprising:

- a plurality of antennas for receiving a plurality of signals from the wireless channel;
- a symbol by symbol minimum distance receiver (SbS MDR);
- a first combined filter having a transfer function that is a combination of a channel matched filter and an SbS MDR matched filter, wherein the channel matched filter is matched to a channel response of the wireless channel and the SbS MDR matched filter is matched to the SbS MDR, the first combined filter coupled to provide one or more filtered outputs to the SbS MDR; and
- a second combined filter that combines a transfer function of the SbS MDR matched filter with a feedback filter that receives an output of the SbS MDR and feeds back a signal to be combined with the one or more filtered outputs at an input of the SbS MDR.

29. (original) The wireless receiver of claim 28, wherein the SbS MDR comprises:

- a correlator;
- means for weighting signals prior to slicing; and
- a slicer that slices weighted signals from the correlator.

30. (original) The wireless receiver of claim 28, wherein the first combined filter further comprises a whitening filter transfer function.

31. (original) A wireless receiver for receiving data over a wireless channel, comprising:

- one or more antennas for receiving one or more signals from the wireless channel;
- a symbol by symbol minimum distance receiver (SbS MDR);
- a first combined filter having a transfer function that is a combination of a channel matched filter, a whitening filter and an SbS MDR matched filter, wherein the channel matched filter is matched to a channel response of the wireless channel and the SbS MDR

matched filter is matched to the SbS MDR, the first combined filter coupled to provide one or more filtered outputs to the SbS MDR; and  
a second combined filter that combines a transfer function of the SbS MDR matched filter with a feedback filter that receives an output of the SbS MDR and feeds back a signal to be combined with the one or more filtered outputs at an input to the SbS of MDR.

32. (original) The wireless receiver of claim 31, wherein the SbS MDR comprises:

a correlator;  
means for weighting signals prior to slicing; and  
a slicer that slices weighted signals from the correlator.